



# CLEARWATER HATCHERY

**1987 Chinook Brood Year Report**

**Red River Pond**



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**By**

**Jerry McGehee  
Fish Hatchery Superintendent II**

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## **ABSTRACT**

Red River is the first of three satellite facilities that will support the Clearwater Hatchery. It was first built in 1974 by the Columbia River Project and then remodeled by the Army Corps of Engineers in 1986. This facility is designed to trap adult chinook salmon and rear 300,000 chinook smolts for release into Red River as part of the mitigation goal of returning 12,200 adult spring chinook above Lower Granite Dam.

A total of 484 adult chinook and 35 jacks were trapped in 1987. Of the 220 females trapped, 78 were used for spawning, 82 were released to spawn naturally, and 60 died prior to spawning. A total of 312,800 eggs were collected and taken to Kooskia Hatchery to eye-up. All eggs from this brood year were destroyed, as IPN virus was found in viscera samples of two adult females.

This brood year was replaced by 300,700 fry from Dworshak Hatchery in June of 1988. The production of 291,200 smolts used 7,100 pounds of feed for a conversion of 1.18 pounds of feed per pound of fish gained.

Author:

Jerry McGehee  
Fish Hatchery Superintendent II

## RED RIVER POND

### Hatchery Description

Red River fish facility is part of the Lower Snake River Compensation Plan's mitigation to return 12,200 adult spring chinook above Lower Granite Dam. This facility has been in operation since June 1987 and provides the ability to trap and hold 500 adult chinook salmon and rear 300,000 juvenile chinook salmon.

Red River operates on water from the South Fork of Red River. An intake structure is located near Red River Ranger Station. The river provides up to 6 cfs of water at high flow. During low flow, total volume is 3 cfs to be split between the rearing pond and adult ponds. Water temperatures range from 38°F to 68°F.

Red River facility consists of an earthen rearing pond that measures 270 ft wide x 330 ft long x 4 ft deep. A catwalk extends 3/4 of the way across the pond and holds seven Nielson OMP feeders. The feeders are controlled by a time clock that operates the feeders for 15 seconds once every hour. A storage building and walk-in freezer are located near the upper end of the rearing pond. The adult facility has a removable tripod and panel weir, fish ladder, trap area, and two adult ponds. A 25 ft x 25 ft support cabin is located near the adult ponds.

### 1987 Spring Chinook Returns

The Red River weir and trap were put into operation on May 14, 1987 and was operated through September 14, 1987. The first fish entered the trap on May 29. Due to the poor design of the adult trap, it could not be emptied until June 10. At this time, a second temporary employee was hired and the local conservation officer volunteered to help empty the trap daily. Data in Figure 1, prior to June 10, was from visual counts. The trap was then emptied daily, and fish were transferred to holding ponds or released into Red River. No fish were injected with erythromycin this year.

A total of 484 adults and 35 jacks were trapped this year. There were 377 four-year-olds and 107 five-year-olds (Figure 2). Age classification was done by length based upon data from coded wire tag returns. Jacks were 64 cm (25 inches) or less, four-year-olds were 64 cm to 82 cm (25 inches to 32 inches), and five-year-olds were over 82 cm (32 inches). Adult and jack returns from several fish releases are seen in Table 1.

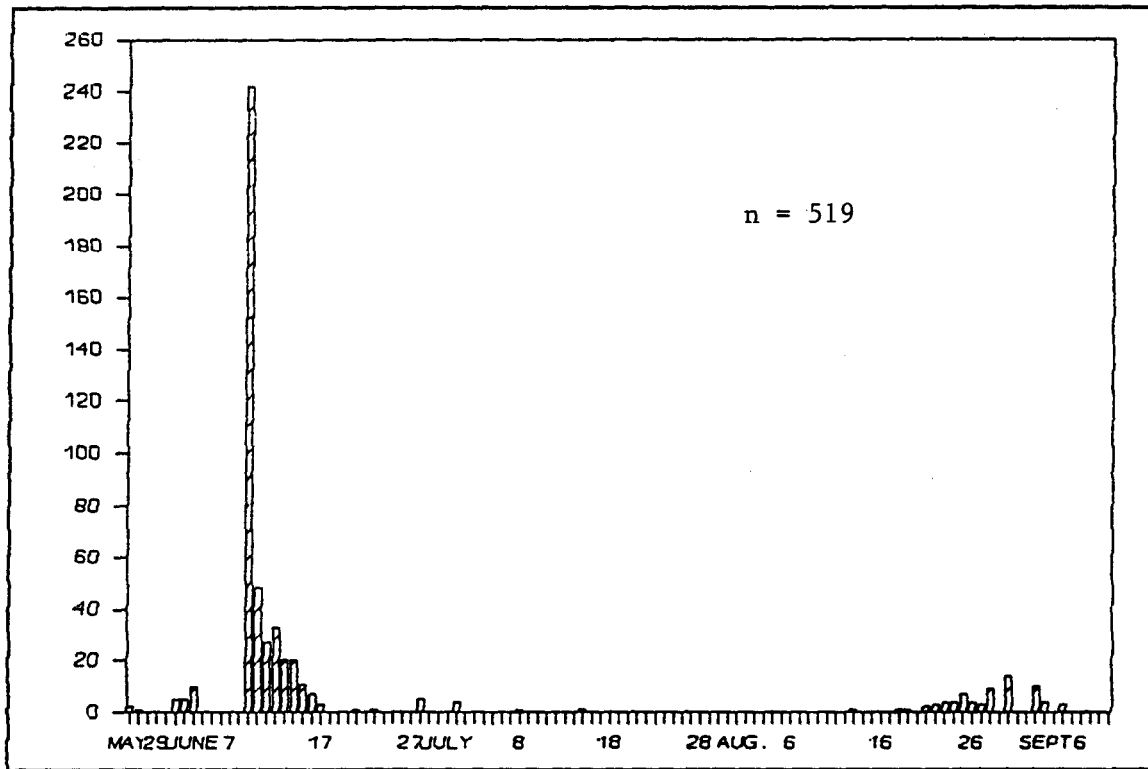


Figure 1. Run timing.

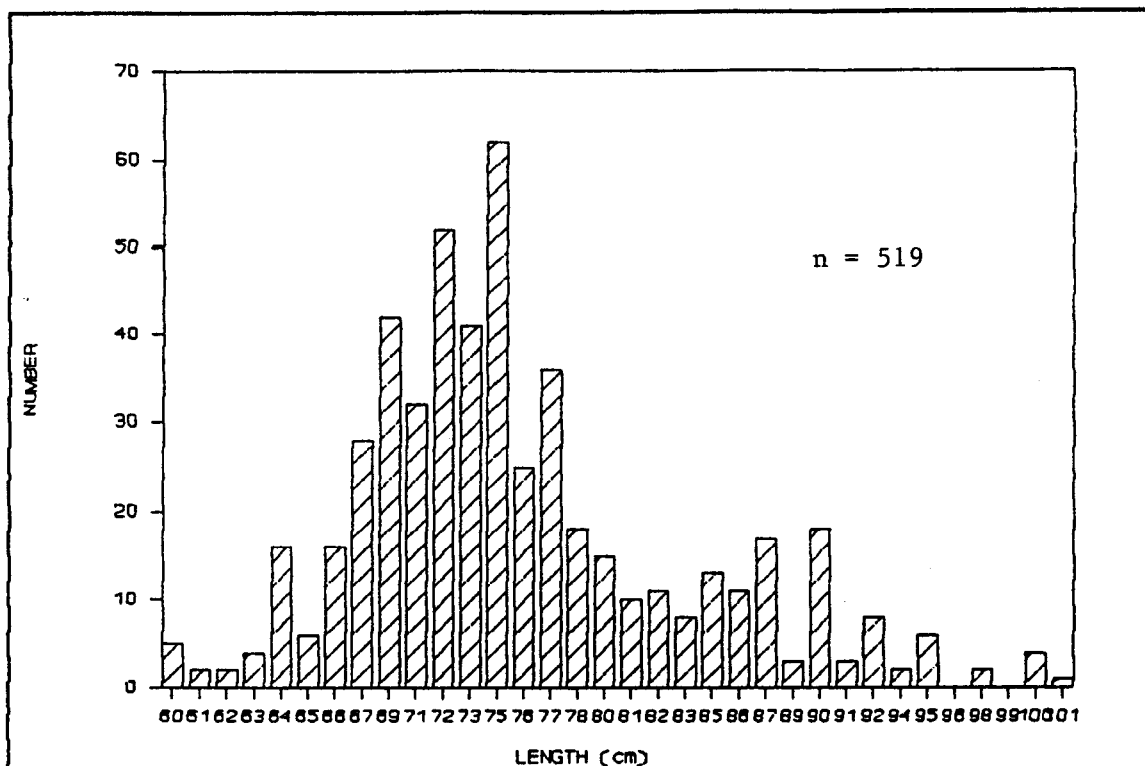


Figure 2. Length frequencies.



Table 1. Red River smolt release and adult returns.

Brood Year	Release Year	Number Released	Adult Returns <sup>d</sup>			Total
			Jacks	2-ocean	3-ocean	
1982	1983 fall	260,000				
	1984 spring	40,000	2	<sup>a</sup>	107	Inc.
1983	1985 spring <sup>b</sup>	80,000	<sup>a</sup>	377	259	511
1984	1986 spring	136,800	35	132		
1985	1986 fall <sup>a</sup>	96,400 <sup>c</sup>	3			
	1987 spring	98,800 <sup>c</sup>				
1986	1987 fall	233,100				
1987	1988 fall	291,200				

<sup>a</sup>Trap was not installed in 1986 due to construction at facility.

<sup>b</sup>These fish over wintered in the rearing pond.

<sup>c</sup>These fish were Rapid River stock reared at Sawtooth Hatchery.

<sup>d</sup>Age based upon CWT returns.

We held 183 males and 138 females for spawning while 116 males and 82 females where released above the weir to spawn naturally.

### Coded Wire Tag Recoveries

All chinook trapped were examined for fin clips and jaw tags. No fish with fin clips or jaw tags were released above the weir. A total of 21 fish were coded wire tagged (Table 2).

Table 2. Coded wire tag data for Red River spring chinook.

Tag Code	Brood Year	Release Year	Tags Released	Tags Recovered	Group Release
10-24-59	1982	fall 1983	60,900	12	260,000
10-24-63	1982	spring 1984	40,700	8	<b>42,000</b>
Total				21	302,000

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### Prespawning Mortality

Prespawning mortality included all females which died before spawning and males that died through the second week of spawning. Of the 321 adults ponded, 146 (45.5%) died prior to spawning (Table 3). These mortalities include 10 fish that jumped onto the pond covers and 4 that jumped out of the ponds. The remaining mortality was due to high water temperatures and fungus.

### Chinook Trapping

Table 3. Summary of fish trapped, released, and spawned.

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Total fish trapped....519

Age class: 3 year olds:	35
4 year olds:	377
5 year olds:	107
Total:	519

Fish disposition: Females

Spawned:	78	175 kelts given away to public.
Released:	82	146 mortality
Mortality:	60	198 released

Total:	220	519 Total
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Fish disposition: Males

Spawned:	78	183 ponded males
Released:	116	138 ponded females
Mortality:	86	
Given away but not spawned:	19	321 Total
Total:	299	

Jacks = 64 cm or less  
4-year-olds = >64 cm to 82 cm  
5-year-olds = >82 cm  
(Based on CWT return data.)

### Chinook Spawning

Spawning activities began on August 5, 1987 and concluded August 31, 1987. During seven spawning sessions, 312,000 green eggs were collected and transported to Kooskia National Fish Hatchery. All eggs were water-hardened for one hour in 200 ppm iodine solution before transportation.

Samples of all fish were taken for disease assays. IPN virus was found in viscera samples of two spawned females and, as a result, all of the eggs of this brood year were destroyed.

### Carcass Disposition

All 156 spawned-out carcasses and 19 additional males were given to the public. Pond mortalities totaling 146 fish were buried.

### Chinook Fingerlings

All of the Brood Year 1987 Red River chinook eggs were destroyed, due to Infectious Pancreatic Necrosis (IPN) being found in disease samples of two female chinook brood stock. On June 6, 1988, 300,700 chinook fingerlings at 100/lb were hauled from Dworshak National Fish Hatchery to Red River pond by Idaho Department of Fish and Game tankers. Fingerlings were fed 1/16-inch OMP4 for 2 weeks, then a 50-50 mix of 1/16-inch and 3/32-inch OMP4 for 1 week. One hundred percent of 3/32-inch pellet was fed until the fish were 50/lb. Then a 50-50 mix of 3/32-inch OMP4 and 1/8-inch OMPII for 1 week. They were then fed 100% 1/8-inch OMPII until release. Fingerlings were fed TM50 medicated feed for coldwater disease in two 14-day treatments, July 13, 1988 and September 12, 1988. See Table 4 for conversion rates and percent body weight fed.

Table 4. Conversion rates, monthly total length at end of month, percent body weight fed and average monthly water temperature.

Month	Conversion	Total Length (in)	% Body weight	Temp (°F)
Jun	1.03	3.5	1.0	46
Jul	1.16	3.9	1.7	62
Aug	0.82	4.81	0.6	61
Sep	1.07	5.05	0.6	56
Oct	2.46	5.07	0.2	42

### Chinook Smolts

Chinook smolts were released from the pond on October 17, 1988. The roller screen and 1/2 of the boards were removed for four hours, then the rest of the dam boards were removed and smolts were flushed from the pond into Red River. A total of 291,200 smolts were released at 25.5/lb and 5.05 inches. See Table 5 for coded wire tagging and freeze branding information.

Table 5. 1987 Brood Year marked spring chinook.

Stock	Release Site	Date Released	Mark	# Released
Clearwater	Red River Pond	10/17/88	LDR-1	18,696
Clearwater	Red River Pond	10/17/88	LDR-2	23,865
Clearwater	Red River Pond	10/17/88	LDR-3	13,439
Total				56,000 <sup>a</sup>

<sup>a</sup>All of these fish were coded wire tagged with data code number 10-40-02.

### Production Costs

The cost to produce the 1987 Brood year smolts at Red River is summarized in Table 6. This cost is only for feed to raise the fish from 100 fish/lb to 25.5 fish/lb.

Table 6. 1987 Brood Year production costs.

Lbs of fish produced	Lbs of feed fed	Cost	Conversion	Cost per pound
8,413	7,100	\$3,295	1.18	\$0.39

### Staffing

This project has finally taken on the overall title of Clearwater Fish Hatchery, and Red River is a satellite of that central rearing facility. This year, the project was operated by one Fish Hatchery Superintendent II, one bio-aide, and one laborer.

## **A P P E N D I X**

Appendix 1. Red River length frequencies.

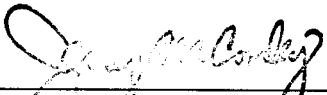
Length (cm)	Number
60	5
61	2
62	2
63	4
64	16
65	6
66	16
67	28
69	42
71	32
72	52
73	41
75	62
76	25
77	36
78	18
80	15
81	10
82	11
83	8
85	13
86	11
87	17
89	3
90	18
91	3
92	8
94	2
95	6
96	0
98	2
99	0
100	4
101	1
Total	519

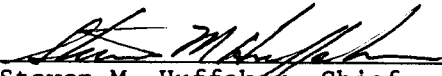
Submitted b y :


Approved by:

Jerry M c G e h e e  
Hatchery Superintendent I I

IDAHO DEPARTMENT OF FISH AND GAME F i s h

  
\_\_\_\_\_  
Jerry M. Conley, Director

  
\_\_\_\_\_  
Steven M. Huffaker, Chief  
Bureau of Fisheries

  
\_\_\_\_\_  
Bill Hutchinson  
Hatcheries Manager